

Applicant : George E. Carter
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Attorney's Docket No.: 99P7519US
Reply to Office action dated January 28, 2004

Amendments to the Claims

The following Listing of Claims replaces all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A computer readable medium containing program instructions for configuring a first computer so that a first telephony client on the first computer may securely communicate with a second telephony client on a second computer via a communication path, the computer readable medium comprising:

computer code for inserting a security algorithm within the communication path between the first telephony client [[device]] and a sound device on the first computer, the security algorithm performing cryptographic operations on audio data transmitted in at least one direction between the first telephony client and the sound device.

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Claim 2 (previously presented): A computer-readable medium as recited in claim 1, wherein the security algorithm operates independently of the first telephony client and the second telephony client.

Claim 3 (original): A computer-readable medium as recited in claim 1, wherein the security algorithm is inserted within the first computer's operating system kernel.

Claim 4 (previously presented): A computer-readable medium as recited in claim 3, wherein the first computer's operating system kernel is in the form of an operating system having an I/O supervisor and a sound card driver, and the security algorithm is inserted between the I/O supervisor and the sound card driver, the security algorithm being configured as a filter driver.

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Claim 5 (original): A computer-readable medium as recited in claim 3, wherein the security algorithm is selected from a group consisting of an IDEA encryption algorithm, a DES encryption algorithm, a GOST algorithm, an RC5 algorithm, and a SEAL algorithm.

Claim 6 (original): A computer-readable medium as recited in claim 1, wherein the security algorithm is not implemented within a user mode of the first computer's operating system.

Claim 7 (original): A computer-readable medium as recited in claim 6, wherein the security algorithm is independent from the first or second telephony clients or any codecs or communication stacks used in conjunction with the first or second telephony clients.

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Claim 8 (currently amended): A method of configuring a first computer so that a first telephony client on the first computer may securely communicate with a second telephony client on a second computer via a communication path, the method comprising inserting a security algorithm within the communication path between the first telephony client [[device]] and a sound device on the first computer, the security algorithm performing cryptographic operations on audio data transmitted in at least one direction between the first telephony client and the sound device.

Claim 9 (previously presented): A method as recited in claim 8, wherein the security algorithm operates independently of the first telephony client and the second telephony client.

Claim 10 (original): A method as recited in claim 8, wherein the security algorithm is inserted within the first computer's operating system kernel.

Claim 11 (previously presented): An operating system for use by a processor in directing operation of a computer upon which a first telephony client may execute to communicate with a second telephony client on a second computer via a communication path, the operating system comprising:

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at least one processor-readable medium; and
a program mechanism embedded in the at least one processor-readable medium for causing the processor to facilitate secure communication between the first and second telephony clients by performing cryptographic operations on audio data transmitted in at least one direction between the first telephony client and a sound device on the first computer.

Claim 12 (canceled)

Claim 13 (previously presented): A computer-readable medium containing programming instructions for a first telephony client having an associated formatting module to communicate securely with a second telephony client, the computer readable medium comprising:

computer code for receiving audio signals from an audio input device;

computer code for encrypting the received audio signals independently of the formatting module associated with the first telephony client, wherein the formatting module is different for different types of telephony clients and the encrypting is independent of telephony client type; and

computer code for transmitting the encrypted audio signals to the formatting module.

Claim 14 (original): A computer-readable medium as recited in claim 13, wherein the formatting module is configured to compress the audio signals using an algorithm selected from a group consisting of a G.711 codec, a G.723 codec, and a G.729 codec.

Claim 15 (canceled)

Claim 16 (previously presented): A computer readable medium as recited in claim 13, wherein the first telephony client has a different type than the second telephony client.

Claim 17 (previously presented): A computer readable medium containing programming instructions for a first telephony client having an associated formatting module to communicate securely with a second telephony client, the computer readable medium comprising:

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computer code for receiving audio signals from an audio input device;
computer code for encrypting the received audio signals independently of the formatting module associated with the first telephony client; and
computer code for transmitting the encrypted audio signals to the formatting module, wherein the formatting module is implemented in a sound card driver that is configured to interface with a sound card that receives and outputs audio signals.

Claim 18 (previously presented): A computer readable medium containing programming instructions for a first telephony client having an associated formatting module to communicate securely with a second telephony client, the computer readable medium comprising:

computer code for receiving audio signals from an audio input device;
computer code for encrypting the received audio signals independently of the formatting module associated with the first telephony client, wherein encrypting is also performed independently from a communication stack implemented by the first telephony client; and
computer code for transmitting the encrypted audio signals to the formatting module.

Claim 19 (previously presented): A computer readable medium containing programming instructions for a first telephony client having an associated formatting module to communicate securely with a second telephony client, the computer readable medium comprising:

computer code for receiving audio signals from an audio input device;
computer code for encrypting the received audio signals independently of the formatting module associated with the first telephony client, wherein encrypting is performed independently from the first telephony client; and
computer code for transmitting the encrypted audio signals to the formatting module.

Claim 20 (previously presented): A computer readable medium containing programming instructions for a first telephony client having an associated formatting module to communicate securely with a second telephony client, the computer readable medium comprising:

computer code for receiving audio signals from an audio input device;

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computer code for encrypting the received audio signals independently of the formatting module associated with the first telephony client, wherein the encrypting implements an algorithm selected from a group consisting of an IDEA encryption algorithm, a DES encryption algorithm, a GOST algorithm, an RC5 algorithm, and a SEAL algorithm; and
computer code for transmitting the encrypted audio signals to the formatting module.

Claim 21 (previously presented): A computer-readable medium containing programming instructions for a first telephony client having an associated interpreting module to communicate securely with a second telephony client, the computer-readable medium comprising:

computer code for receiving audio signals from the interpreting module;
computer code for decrypting the received audio signals independently of the interpreting module associated with the first telephony client; and
computer code for outputting the decrypted audio signals for transmission to an audio output device.

Claim 22 (original): A computer-readable medium as recited in claim 21, wherein the interpreting module is configured to decompress audio signals that are compressed with an algorithm selected from a group consisting of a G.711 codec, a G.723 codec, and a G.729 codec.

Claim 23 (original): A computer-readable medium as recited in claim 21, wherein the interpreting module is different for different types of telephony clients and the encrypting is independent of telephony client type.

Claim 24 (original): A computer-readable medium as recited in claim 23, wherein the first telephony client has a different type than the second telephony client.

Claim 25 (original): A computer-readable medium as recited in claim 21, wherein the interpreting module is implemented in a sound card driver that is configured to interface with a sound card that receives and outputs audio signals.

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Claim 26 (original): A computer-readable medium as recited in claim 21, wherein decrypting is also performed independently from a communication stack implemented by the first telephony client.

Claim 27 (original): A computer-readable medium as recited in claim 21, wherein decrypting is performed independently from the first telephony client.

Claim 28 (original): A computer-readable medium as recited in claim 21, wherein the decrypting implements an algorithm selected from a group consisting of an IDEA encryption algorithm, a DES encryption algorithm, a GOST algorithm, an RC5 algorithm, and a SEAL algorithm.

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Claim 29 (previously presented): A method of transmitting a telephonic signal from a first telephony system to a second telephony system comprising:
initiating a telephonic session between the first and second telephony systems;
encrypting a telephonic signal with a security algorithm;
formatting the encrypted telephonic signal into a predetermined format that is recognizable by the second telephony system, wherein the encrypting is independent of the formatting; and
transmitting the telephonic signal to the second telephony system after the telephonic signal has been encrypted and formatted.

Claim 30 (previously presented): A method of a first telephony system to receive a telephonic signal from a second telephony system comprising:
receiving a telephonic signal from the second telephony system, the received telephonic signal being formatted into a predetermined format by the second telephony system;
interpreting the predetermined format of the telephonic signal received from the second telephony system; and
decrypting the interpreted telephonic signal, the decrypting being performed independently of the interpreting of the predetermined format.

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Claim 31 (previously presented): A computer system for communicating telephonic signals between a first telephony system and a second telephony system, the computer system comprising:

a formatting module arranged to configure telephonic signals into a first predetermined format that is recognizable by the second telephony system;

an interpreter module arranged to recognize a second predetermined format of telephonic signals received from the second telephony system; and

a security module arranged to encrypt telephonic signals prior to transmission to the formatting module and to decrypt telephonic signals received from the interpreter module, wherein the encrypting is independent of the first predetermined format that is recognizable by the second telephony system and the decryption is independent from the second predetermined format of telephony signals received by the first telephony system.

Claim 32 (previously presented): A computer-readable medium as recited in claim 1, wherein the security algorithm encrypts audio data received from the sound device and transmits encrypted audio data to the first telephony client.

Claim 33 (previously presented): A computer-readable medium as recited in claim 1, wherein the security algorithm decrypts audio data received from the first telephony client and transmits decrypted audio data to the sound device.

Claim 34 (previously presented): A method as recited in claim 8, wherein the security algorithm encrypts audio data received from the sound device and transmits encrypted audio data to the first telephony client.

Claim 35 (previously presented): A method as recited in claim 8, wherein the security algorithm decrypts audio data received from the first telephony client and transmits decrypted audio data to the sound device.